Technical Publication Transfer

Using:

Gateway Conversion Technology's Data

MIL-M-28001A (SGML)
MIL-R-28002A (Raster)

Quick Short Test Report

21 May 1993

Prepared for

DTIC QUALITY INSPECTED 3

Electronic Systems Center

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Quick Short Test Report

21 May 1993

Prepared By
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DISCLAIMER

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1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Gateway Conversion Technology's interpretation and use of the CALS standards, in transferring technical publication data. Gateway Conversion used its CALS Technical Data Interchange System to produce data in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-052

Date of
Evaluation: 21 May 1993

Evaluator: George Elwood
                             Air Force CALS Test Bed
                             DET 2 HQ ESC/AV-2P
                             4027 Colonel Glenn Hwy
                             Suite 300
                             Dayton OH 45431-1672

Data
Originator: Suzy Wharam
                             Gateway Conversion Technology
                             4709 Creekstone Drive
                             Suite 300
                             Morristown NC 27560
                             (919) 319-6500

Data
Description: Technical Manual Test
                                    1 Document Declaration file
                                    1 Document Type Definition (DTD)
                                    1 Text/Standard Generalized Mark-up Language
                                            (SGML) file
                                    9 Raster files

Data
Source System:
                    1840
                            HARDWARE

                                    Unknown
                            SOFTWARE
                                    AFCTN *Tapetool v1.2.8*

                    Text/SGML
                            HARDWARE
                                    Unknown
                            SOFTWARE
                                    SoftQuad

Raster
HARDWARE
Unknown
SOFTWARE
Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)
SUN 3/280
AFCTN *Tapetool v1.2.8 UNIX*
XSoft *CAPS/CALS v40.4*
Texas Instruments (TI) *Tapetool v1.0.1*
PC 486/50
AFCTN *Tapetool v1.2.9 DOS*

MIL-M-28001 (SGML)
SUN SparcStation 2
ArborText *ADEPT v4.2.1*
PC 486/50
Exoterica *XGMLNormalizer v1.2e3.2*
Exoterica *Validator v2.0 EXL*
McAfee & McAdam *Sema Mark-it v2.3*
Public Domain *sgmls*

MIL-R-28002 (Raster)
SUN SparcStation 2
ArborText *g42tiff*
XSoft *CAPS ccitt2caps v6.0x*
Carberry *CADLeaf Plus v3.1*
AFCTN *validg4*
AFCTN *calstb.475*
IGES Data Analysis (IDA) *IGESView v3.0*
Island Graphics *IslandPaint v3.0*
PC 486/50
AFCTN *validg4*
IDA *IGESView Windows*
Inset Systems *HiJaak v2.1*
Inset Systems *HiJaak Window v1.0*
Software Publishing Corporation
(SPC) *Harvard Graphics v3.0*
Corel *Ventura Publisher*

Standards Tested:
MIL-STD-1840A
MIL-M-28001A
MIL-R-28002A

3.   1840A Analysis

3.1   External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in a barrier bag as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2   Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1   Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.9* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The tape was read using TI's *Tapetool v1.0.1* without a reported error.

3.2.2   Declaration and Header Fields

Twelve (12) errors and twelve (12) notes were reported in the Document Declaration file and data file headers. All of these messages were generated because of an incorrect dstdocid. Some value other than "NONE" should have been

inserted here. For the AFCTB, the NONE can be an acceptable value although another value should have been inserted. This value will cause problems in XSoft's *CAPS read1840A* utility, as it uses the dstdocid value for sub-directories. If the NONE value had been inserted for two separate documents, the files could have been over written.

dstdocid: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid value for 'dstdocid:'.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - The value must be the
    Destination Organization's Document Number.

The physical structure of tape meets the AFCTB basic requirements, but it could cause problems if delivered with several documents on the tape.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

5. SGML Analysis

The AFCTB has several parsers available for evaluating submitted DTD and Text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or Text files required by each system are not documented in the report.

The Text and DTD files from this document were tested using Exoterica's *XGMLNormalizer* parser. The first pass through the DTD generated and error relating to the public identifier for Latin. In checking the submitted DTD the reference was found to be incorrect and misspelled. The reference is shown below along with the corrected reference. The reference in the submitted DTD was not per the CALS MIL-D-28001A

specification. This reference was corrected for the remaining operations for all parsers.

SUBMITTED
```
<!ENTITY % ISOlat1 PUBLIC "ISO 8879-1986//ENTITIES Laten
1/EN">
```

CORRECTED
```
<!ENTITY % ISOlat1 PUBLIC "ISO 8879-1986//ENTITIES Added
Latin 1//EN">
```

On two of the other public identifiers, an extra set of quote marks had to be removed.

```
<!ENTITY % ISOnum PUBLIC "ISO 8879-1986//ENTITIES Numeric and Special
                   Graphic//EN"                         REMOVED
          ▪"/app/sqps/entities/isonum.ent"> <!ENTITY % ISOtech PUBLIC
                   "ISO      8879-     1986//ENTITIES    General
                   Technical//EN"                        REMOVED
          ▪"/app/sqps/entities/isotech.ent">
```

The next pass through the parser generated three errors, all of which are ambiguous content models. No further operations could be completed because of the errors. The three errors and the parts of the DTD are shown below.

```
C:\XGML\XGMLNORM.EXE --
Error on line 310 in file entities/9352.dtd:
A content model is ambiguous.
For element 'IDINFO'.  The input is 'REVNUM'.
```

```
<!ELEMENT          idinfo                          -        -

                   (pubno|revnum?|revdate?|copyno?|doctype|
                   prtitle|mfr|contractno+|notice|downgrd?|
                   pubdate|((chgnum,chgdate)?)|
                   ((revnum,revdate)?)+)* >
```

```
C:\XGML\XGMLNORM.EXE --
Error on line 434 in file entities/9352.dtd:
A content model is ambiguous.
```

For element 'STEP1'. The input is 'PARA'.

```
<!ELEMENT step1 - o
     (warning*,caution*,para*,note*,para*,result*,step2*)*>
<!ATTLIST step1      %att; >
```

```
C:\XGML\XGMLNORM.EXE --
Error on line 449 in file entities/9352.dtd:
A content model is ambiguous.
For element 'SUBPARA1'.  The input is 'PARA'.
<!-- The document prolog is in error. -->
```

```
<!ELEMENT                   subpara1                -                   o
     (%nparcon;,,step1*,(para|step1|subpara2|%nparcon;)*)  >
<!ATTLIST subpara1  tocentry     %yesorno;       "0"
                    shortentry   %yesorno;       "0"
                    %att;    >
```

The Text and DTD files from the tape were evaluated using another parser available within the AFCTB. In this software are errors which prevent the DTD from parsing. See the Appendix to this report for the log file.

The Text and DTD files from this document were evaluated using Exoterica's *Validator* parser. This utility reported three (3) errors and fourteen (14) warnings. See the Appendix to this report for the complete error log.

The Text and DTD files from the tape were evaluated using McAfee & McAdam's *Sema Mark-it* parser. This program reported the same errors as reported above.

The Text and DTD files from the tape were evaluated using the Public Domain *sgmls* parser. This utility reported the same errors as reported above. See the Appendix for the complete log.

The DTD does not meet the CALS MIL-M-28001A specification, with ambiguous context models being reported by all parsers available in the AFCTB. The miss named public entity also caused problems.

6. Raster Analysis

The tape contained nine (9) Raster files. All files were
evaluated using the AFCTN *validg4* utility. This program
reported that all files meet the CALS MIL-R-28002A specifi-
cation.

The files were read into the AFCTN *calstb.475* viewing
utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These
tools are not used to generate a pass/fail but to report how
commercially available software can handle the files. Many
of these products are used in the development of technical
publications and are good indicators of usability. The use
of these products is not an endorsement nor an indication of
CALS capability. All operations were performed using the
default settings.

The files were converted using ArborText's *g42tiff* utility
without a reported error. The resulting files were read
into Island Graphics' *IslandPaint* and displayed.

The Raster files were read into Carberry's *CADLeaf* software
without a reported error. The images were displayed.

The files were read into IDA's *IGESView* and *IGESView for
Windows* and displayed without a reported error.

The files were read into Inset Systems' *HiJaak for Windows*
displayed and printed without a reported error.

The files were converted using Inset Systems' *HiJaak for DOS*
into an IMG format without a reported error. The resulting
files were read into Corel's *Ventura Publisher* and dis-
played.

The Raster files were converted using Rosetta Technologies'
Prepare without a reported error. The resulting files were
read into Rosetta Technologies' *Preview* and displayed.

The nine (9) Raster files on this tape meet the CALS MIL-
R-28002A speicifcation.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included on
this tape.

8. Conclusions and Recommendations

The tape from Gateway Conversion was basically correct. The tape could be read properly using the AFCTN *Tapetool* software without any reported tape label errors. The Document Declaration file and all data files had reported errors due to the use of "NONE" for the dstdocid record. This may be correct for a delivery to the AFCTB but is unacceptable for contract delivery. The physical structure of the tape is acceptable for the AFCTB.

The DTD had a basic error which required correcting before additional evaluation could be completed. The reference to a public entity set was incorrect. All of the parsers available in the AFCTB reported errors in ambiguous content models. The DTD does not meet the CALS MIL-M-28001A specification.

The nine (9) Raster files included on the tape meet the CALS MIL-R-28002A specification.

The tape does not meet the CALS MIL-STD-1840A requirements because of the errors in the DTD.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

Air Force Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release 9 (O)

Standards referenced:
  MIL-STD-1840A (1987) - Automated Interchange of Technical Information
  ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                      for Information Interchange
  ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri May 21 12:04:49 1993

MIL-STD-1840A File Catalog

File Set Directory: C:\CTN129\OVERLAND\SET011

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001G001	DTD	D/00260	02048/000012	Extracted
D001R002	Raster	F/00128	02048/000012	Extracted
D001R003	Raster	F/00128	02048/000015	Extracted

<<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001R009	Raster	F/00128	02048/000003	Extracted
D001R010	Raster	F/00128	02048/000013	Extracted
D001T011	Text	D/00260	02048/000063	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

Air Force Air Force CALS Test Network Tape Evaluation - Version 1.2; Release 9 (O)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri May 21 12:04:35 1993

ANSI Tape Import Log

Rewinding tape to load point...

VOL1CALS01   4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001   CALS010001000100000 93140 00000 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date: 93140
  Expiration Date: 00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

Actual Block Size Found = 2048 Bytes.

Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001   CALS0100010001000000 93140 00000 000001

  Label Identifier: EOF1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date: 93140
  Expiration Date: 00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2D0204800260   00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

                    <<<<< *PART OF LOG REMOVED HERE* >>>>>

************ Tape Mark ***************

EOF1D001T011   CALS0100010012000000 93140 00000 000063

  Label Identifier: EOF1
  File Identifier: D001T011
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0012
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date: 93140
  Expiration Date: 00000

File Accessibility:
Block Count: 000063
Implementation Identifier:

EOF2D0204800260   00

Label Identifier: EOF2
Recording Format: D
Block Length: 02048
Record Length: 00260
Offset Length: 00

************ Tape Mark ***************

************ Tape Mark ***************

############ End of Volume CALS01 #############

############ End Of Tape File Set #############

Rewinding tape to load point...

Tape Import Process terminated normally.

9.3 Tape File Set Validation Log

Air Force Air Force CALS Test Network File Set Evaluation - Version 1.2; Release 9 (O)

   Standards referenced:
     MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri May 21 12:04:49 1993

MIL-STD-1840A File Set Evaluation Log

File Set: SET011

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Gateway Conversion Technologies, Inc.
srcdocid: TO16C1-27-28-2
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930520
dstsys: Northrop Corp.
dstdocid: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid value for 'dstdocid:'.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - The value must be the
    Destination Organization's Document Number.
dstrelid: NONE
dtetrn: 19930520
dlvacc: NONE
filcnt: G1,R9,T1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Technical Publication
docttl: NONE

1 error(s), 0 warning(s), and 1 note(s) were encountered
in Document Declaration File D001.

Found file: D001G001
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: TO16C1-27-28-2
dstdocid: NONE
*** ERROR (MIL-STD-1840A; 5.1.4.2) - Invalid value for 'dstdocid:'.

*** NOTE (MIL-STD-1840A; 5.1.4.2) - The value must be the
    Destination Organization's Document Number.
notes: NONE

1 error(s), 0 warning(s), and 1 note(s) were encountered
 in DTD File D001G001.
Saving DTD Header File: D001G001.HDR
Saving DTD Data File: D001G001.DTD

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: TO16C1-27-28-2
dstdocid: NONE
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Invalid value for 'dstdocid:'.
*** NOTE (MIL-STD-1840A; 5.1.4.4) - The value must be the
    Destination Organization's Document Number.
txtfilid: W
figid: fig1-1
srcgph: fig1-1
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 001856,001712
rdensty: 0300
notes: NONE

1 error(s), 0 warning(s), and 1 note(s) were encountered
 in Raster File D001R002.
Saving Raster Header File: D001R002.HDR
Saving Raster Data File: D001R002.GR4

            <<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001T011
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: TO16C1-27-28-2
dstdocid: NONE
*** ERROR (MIL-STD-1840A; 5.1.4.1) - Invalid value for 'dstdocid:'.
*** NOTE (MIL-STD-1840A; 5.1.4.1) - The value must be the
    Destination Organization's Document Number.
txtfilid: W
doccls: UNCLASSIFIED
notes: NONE

1 error(s), 0 warning(s), and 1 note(s) were encountered
 in Text File D001T011.
Saving Text Header File: D001T011.HDR
Saving Text Data File: D001T011.TXT

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

A total of 12 error(s), 0 warning(s), and 12 note(s) were
encountered in Document D001.

A grand total of 12 error(s), 0 warning(s), and 12 note(s) were
encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

10. Appendix B - Detailed SGML Analysis

10.1 Parser Log

```
              SGML Document Type Definition Parser
                 An SGML System Conforming to
               International Standard ISO 8879
               Standard Generalized Markup Language


Log file: '9352.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9352.dtd'


<!DOCTYPE DOCIM Parsing DOCTYPE DOCIM


<!ELEMENT note        - o (para+|%list;)>
<!ATTLIST note            type      CDATA      #IMPLIED
          XREFID    idref DTD0137: Incorrect token 'idref'.
          Parser Ignoring Input Up To Next MDO.
          In declaration: '<!ATTLIST'.
          In declaration: '<!DOCTYPE'.
          in entity 'list'
          in line 353 in file '9352.dtd'
     #implied
                          %att;>


<!ENTITY bull DTD0143: Attempt to declare general entity name 'bull'
          more than once denied.
          In declaration: '<!ENTITY'.
          In declaration: '<!DOCTYPE'.
          in entity 'secur'
          in line 585 in file '9352.dtd'
SDATA "[bull  ]">
<!ENTITY lt DTD0143: Attempt to declare general entity name 'lt'
          more than once denied.
          In declaration: '<!ENTITY'.
          In declaration: '<!DOCTYPE'.
          in entity 'secur'
          in line 595 in file '9352.dtd'
SDATA "[lt    ]">
        ]>


DTD0096: The generic ID DOCNO has not been used in any content
```

```
                 model, inclusion, or as a doctype element.
DTD0096: The generic ID EQPTTYPE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID HCI has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID HRULE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID MODELNO has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID PHASE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SUPEQP has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SUPPLIES has not been used in any content
         model, inclusion, or as a doctype element.

DTD does not conform to ISO 8879 standard due to these errors:
    Uncorrectable syntax error count: 1
.DTO file not created due to parsing errors.

Program status code: 5.
```

10.2   Exoterica XGMLNormalizer Parser

```
C:\XGML\XGMLNORM.EXE --
Error on line 310 in file entities/9352.dtd:
A content model is ambiguous.
For element 'IDINFO'.  The input is 'REVNUM'.

C:\XGML\XGMLNORM.EXE --
Error on line 434 in file entities/9352.dtd:
A content model is ambiguous.
For element 'STEP1'.  The input is 'PARA'.

C:\XGML\XGMLNORM.EXE --
Error on line 449 in file entities/9352.dtd:
A content model is ambiguous.
For element 'SUBPARA1'.  The input is 'PARA'.
<!-- The document prolog is in error. -->
```

10.3 Exoterica Validator Log

```
<!-- Entity has no name, system id or public id in formal file -->.
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "ENTRY".
   (((#PCDATA|xref|change|emphasis|esd|hcp|ocp|
       ^^^^^^
-->
<!-- **Error** in "9352.sgm", line 388:
   A content model must not be ambiguous.
   For the declared element "IDINFO", the element "REVNUM" is ambiguous in the
   content model.
                           ((revnum,revdate)?)+)* >
                                            ^
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "NOTICE".
   (((#PCDATA|xref|change|emphasis|esd|hcp|ocp|
       ^^^^^^
-->
<!-- **Error** in "9352.sgm", line 509:
   A content model must not be ambiguous.
   For the declared element "STEP1", the element "PARA" is ambiguous in the
   content model.
   <!ELEMENT step1 - o (warning*,caution*,para*,note*,para*,result*,step2*)*>
                                                                    ^
-->
<!-- **Error** in "9352.sgm", line 524:
   A content model must not be ambiguous.
   For the declared element "SUBPARA1", the element "PARA" is ambiguous in the
   content model.
   <!ELEMENT subpara1 - o (%nparcon;,step1*,(para|step1|subpara2|%nparcon;)*)
                                                                          /\
-->
<!-- **Warning** in "9352.sgm", line 652:
   A general entity name has been declared more than once.
   The entity is "bull".
   <!ENTITY bull SDATA "[bull  ]">
            ^^^^
-->
<!-- **Warning** in "9352.sgm", line 662:
   A general entity name has been declared more than once.
```

```
    The entity is "lt".
    <!ENTITY lt SDATA "[lt    ]">
                      ^^
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "DOCNO".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "EQPTTYPE".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "HCI".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "HRULE".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "MODELNO".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "PHASE".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "QUANTITY".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "SPECIFICATION".
-->
<!-- **Warning** in "9352.sgm", line 663:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
```

```
    The element is "SUPEQP".
-->
<!-- **Warning** in "9352.sgm", line 663:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "SUPPLIES".
-->
<!-- 3 errors and 14 warnings reported. -->
```
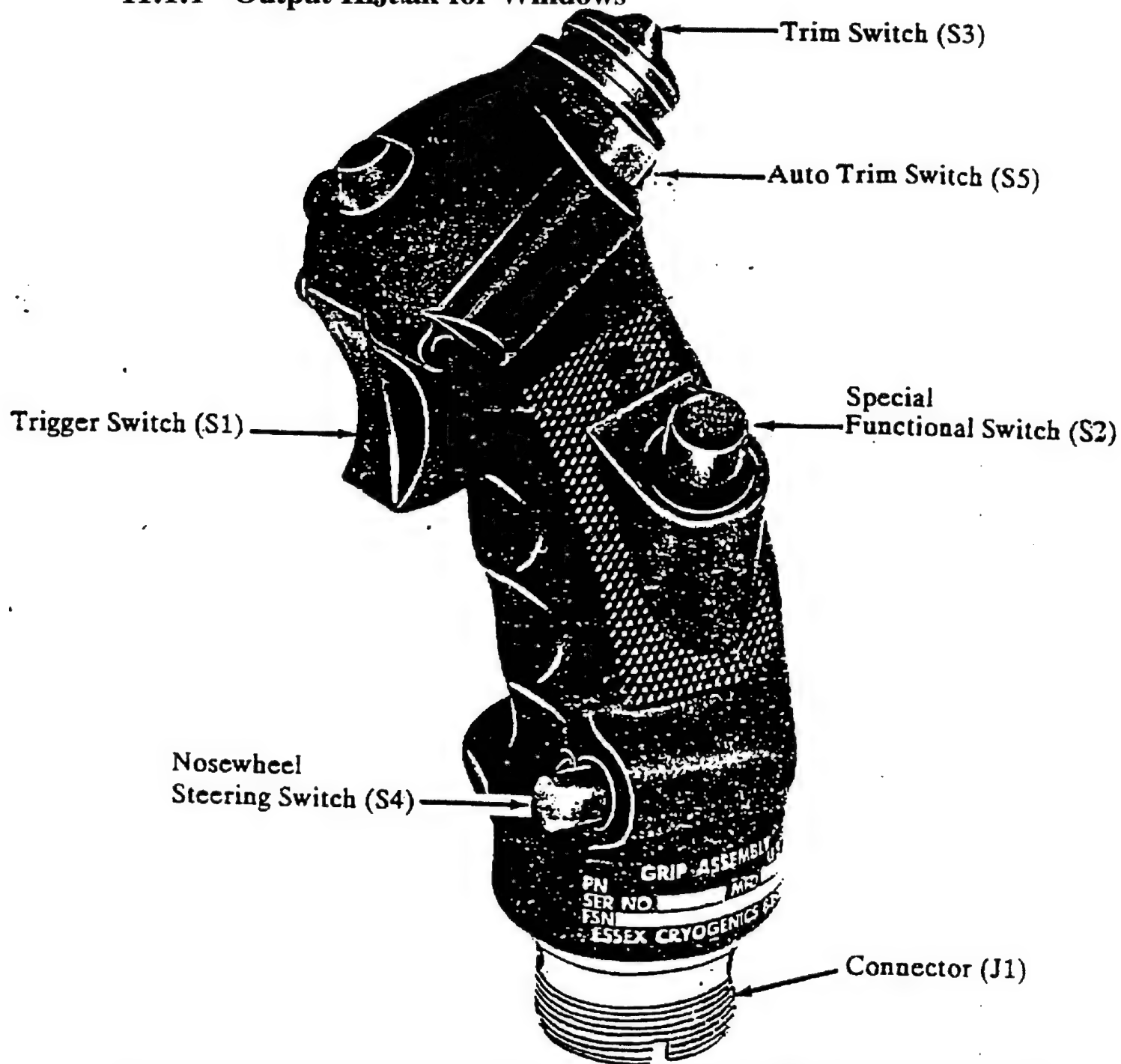
10.4 Public Domain sgmls Log

```
sgmls: SGML error at 9352.dtd, line 332 in declaration parameter 4:
       Content model is ambiguous
sgmls: SGML error at 9352.dtd, line 453 in declaration parameter 4:
       Content model is ambiguous
sgmls: SGML error at 9352.dtd, line 468 in declaration parameter 4:
       Content model is ambiguous
TOTALCAP 151017/200000
  ENTCAP 13120/200000
ENTCHCAP  6983/200000
 ELEMCAP  3616/200000
  GRPCAP 25408/200000
EXGRPCAP   192/200000
 EXNMCAP   352/200000
  ATTCAP 78272/200000
ATTCHCAP   914/200000
AVGRPCAP 22080/200000
  NOTCAP    32/200000
NOTCHCAP    48/200000
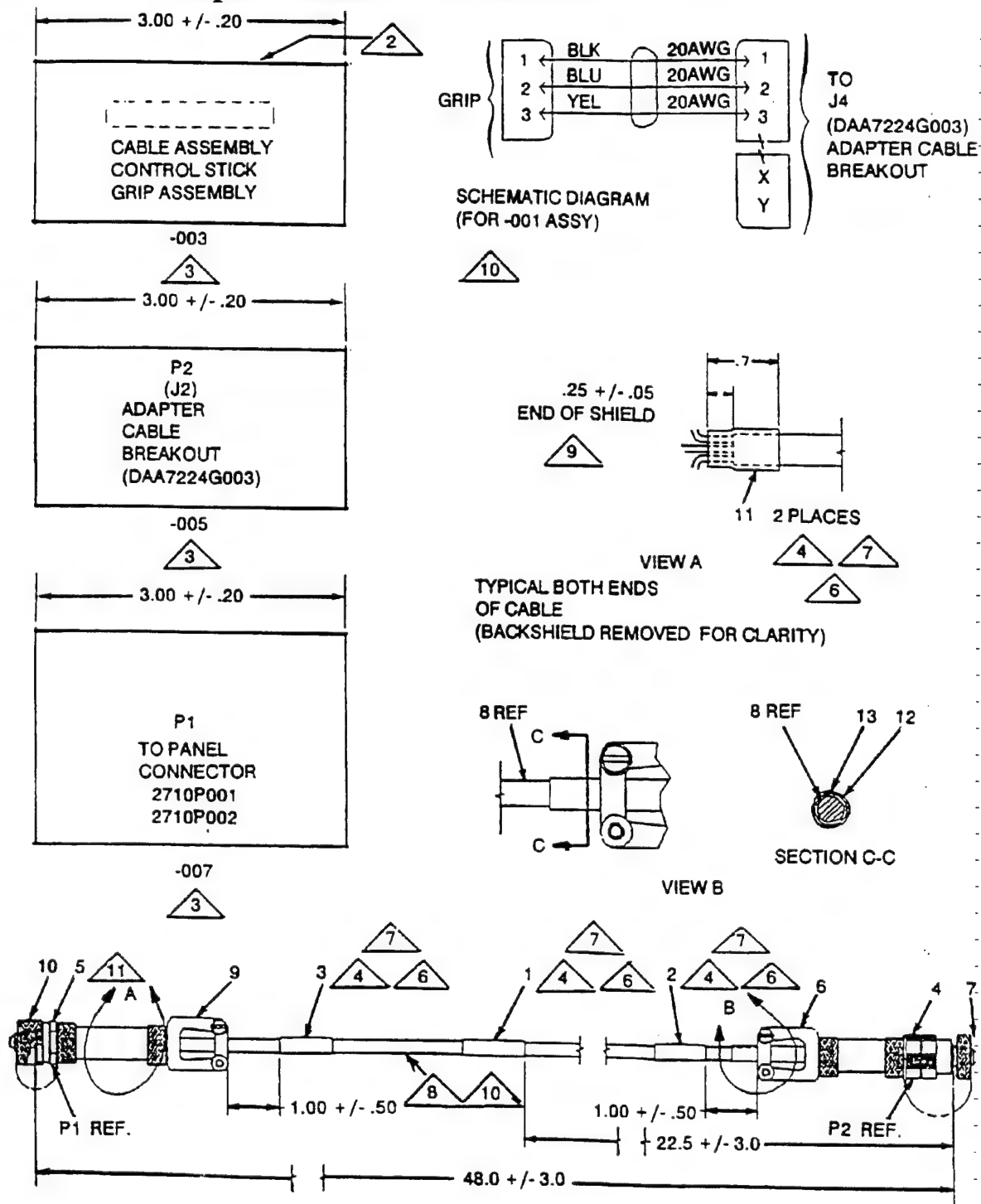```

## 11. Appendix D - Detailed Raster Analysis
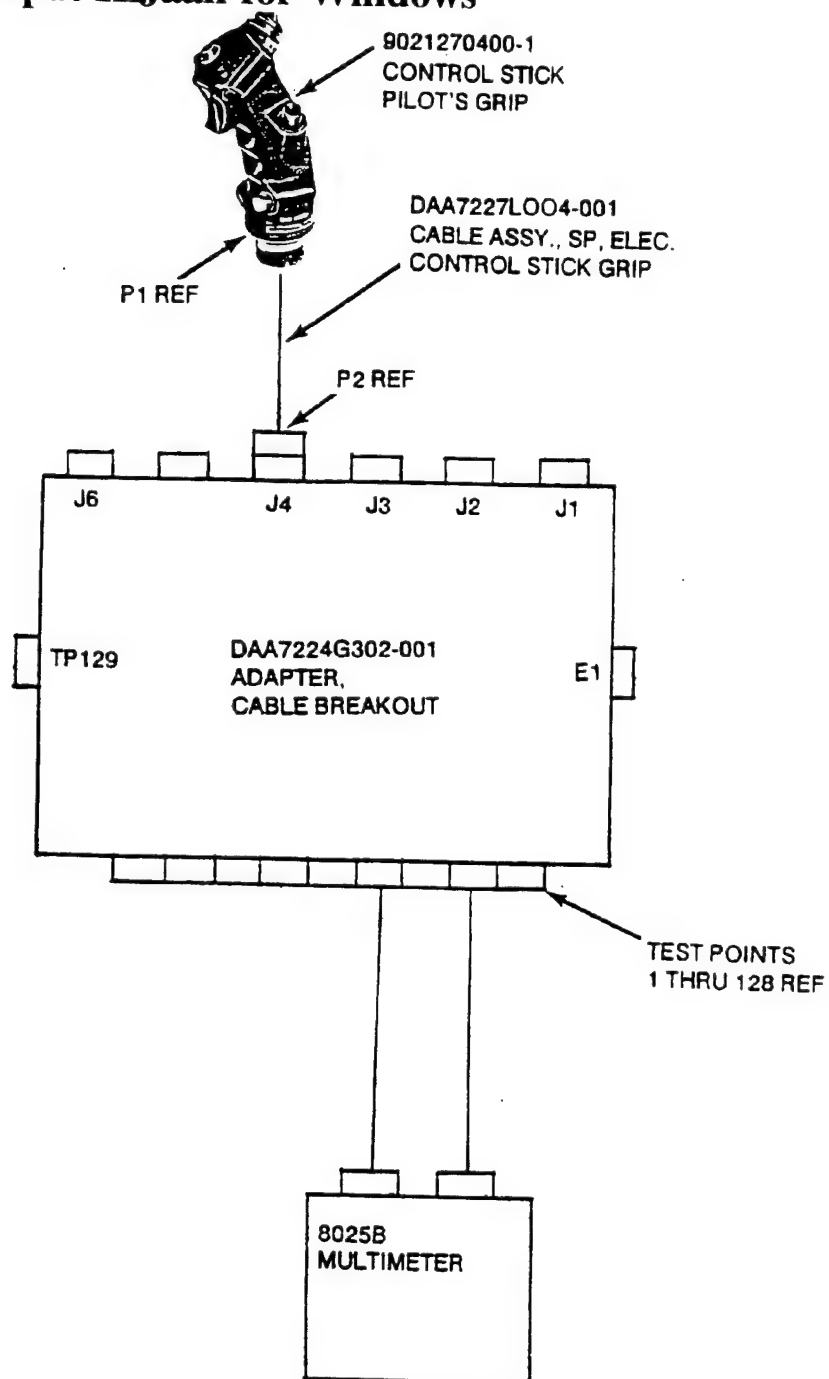
## 11.1 File D001R002

## 11.1.1 Output HiJaak for Windows

Trim Switch (S3)

Auto Trim Switch (S5)

Trigger Switch (S1)

Special
Functional Switch (S2)

Nosewheel
Steering Switch (S4)

GRIP ASSEMBLY
PN
SER NO.
FSN
ESSEX CRYOGENICS

Connector (J1)

## 11.2   File D001R003

## 11.2.1   Output HiJaak for Windows

## 11.3   File D001R004

## 11.3.1   Output HiJaak for Windows



9021270400-1
CONTROL STICK
PILOT'S GRIP

DAA7227LOO4-001
CABLE ASSY., SP, ELEC.
CONTROL STICK GRIP

P1 REF

P2 REF

J6        J4        J3        J2        J1

TP129        DAA7224G302-001
ADAPTER,
CABLE BREAKOUT        E1

TEST POINTS
1 THRU 128 REF

8025B
MULTIMETER

CONNECT
PER TEST
REQUIREMENTS

## 11.4   File D001R005

## 11.4.1   Output HiJaak for Windows



LEGEND:

1. CONNECTOR
2. RETAINING RING
3. SCREW
4. NUT
5. TERMINAL
6. SCREW (3)
7. NOSEWHEEL STEERING SWITCH (S4)
8. SPECIAL FUNCTION SWITCH (S2)
9. AUTO TRIM SWITCH
10. SCREW
11. WASHER
12. CLAMP
13. TRIM SWITCH (S3)
14. SET SCREW
15. SPRING
16. GUIDE
17. BALL
18. TENSION NUT CAP
19. NUT
20. SPRING
21. PIN
22. PIN
23. TRIGGER
24. SCREW (2)
25. TRIGGER SWITCH (S1)
26. NAMEPLATE
27. GRIP
28. SHIPPING CAP
29. TERMINAL
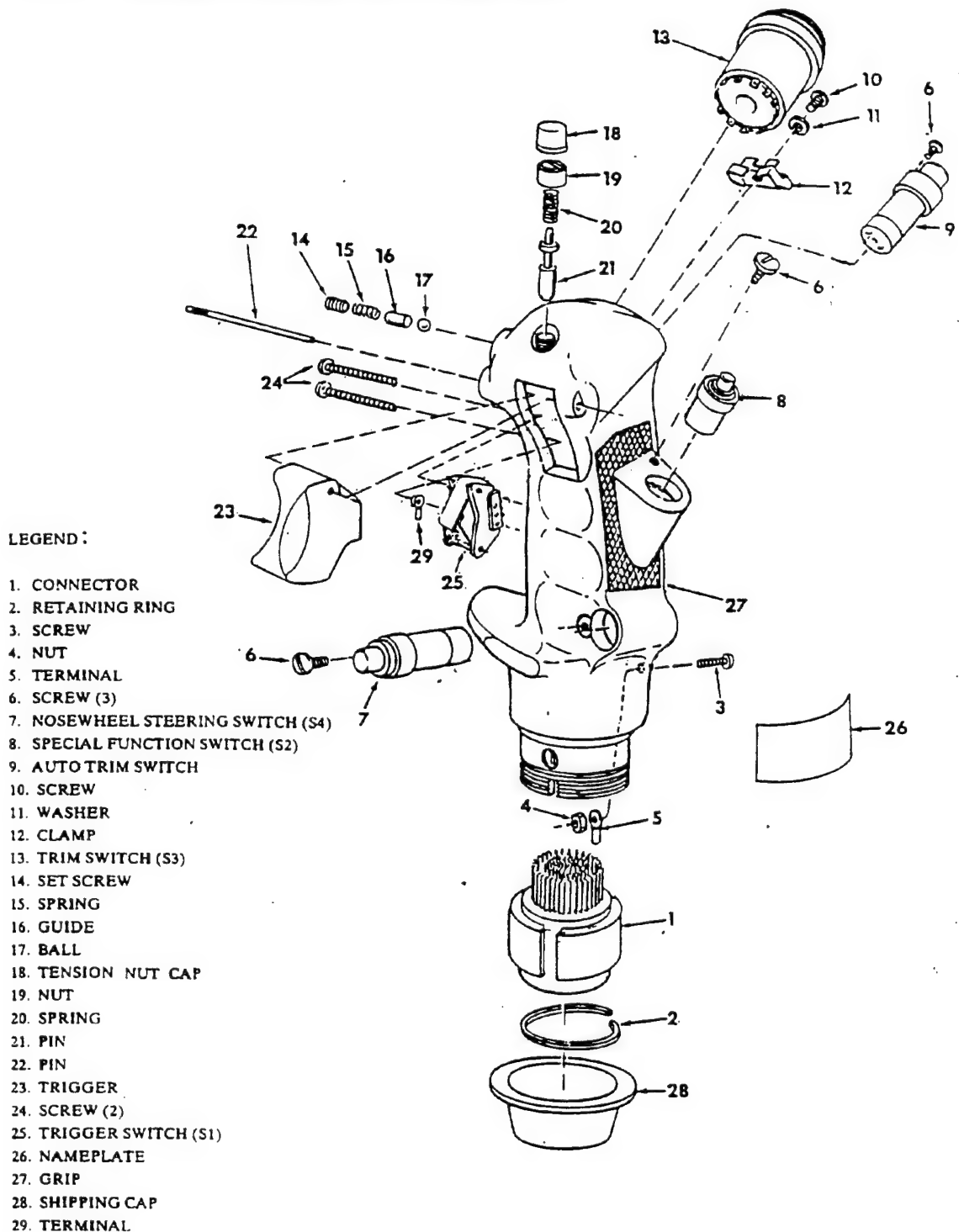
## 11.5   File D001R006

## 11.5.1   Output HiJaak for Windows
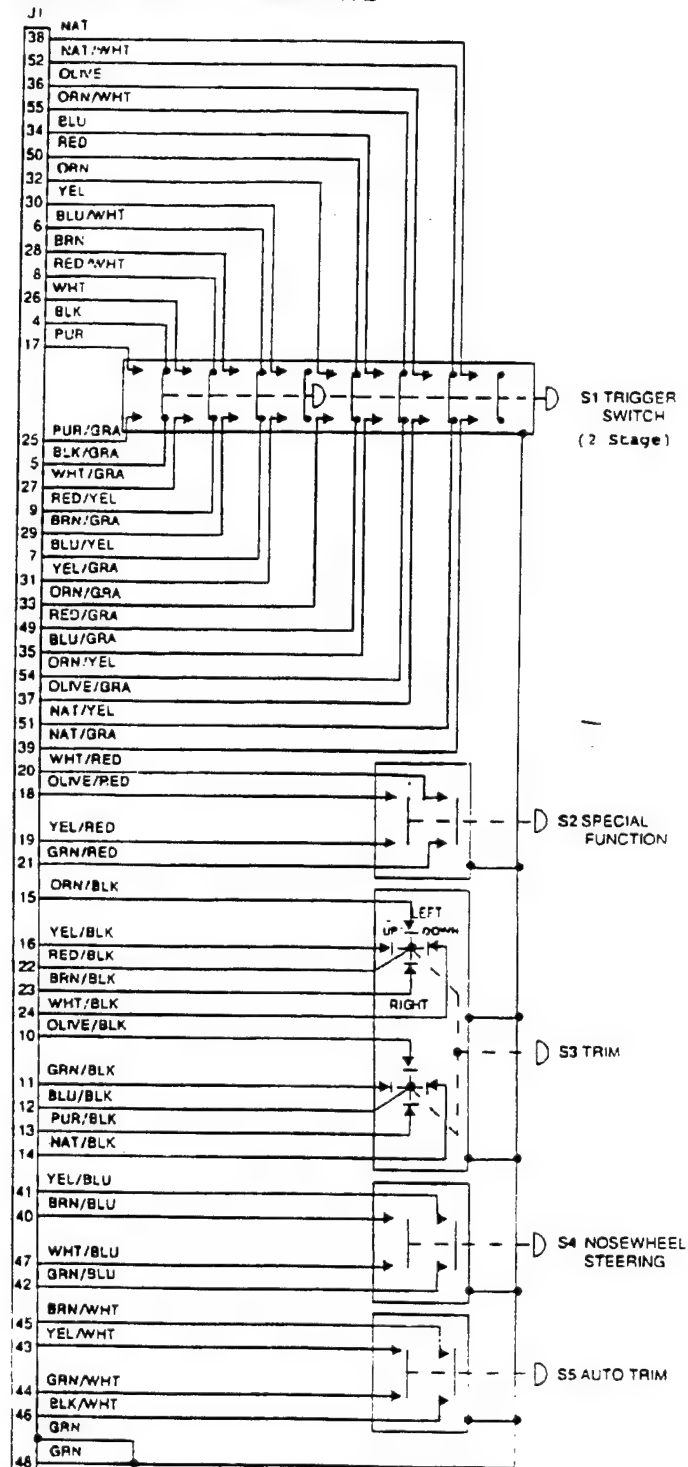
## 11.6   File D001R007

### 11.6.1   Output HiJaak for Windows
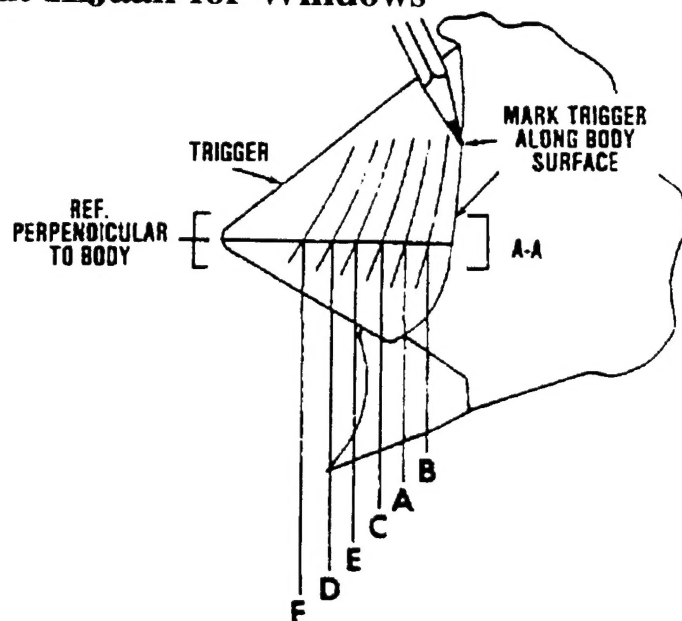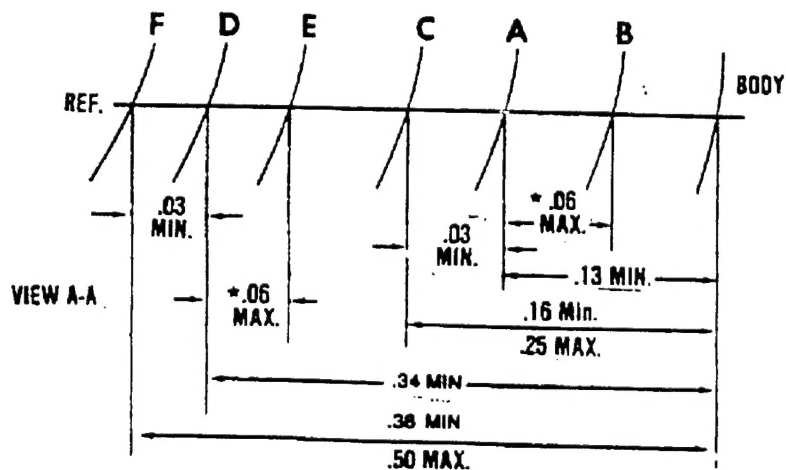


KEYWAY
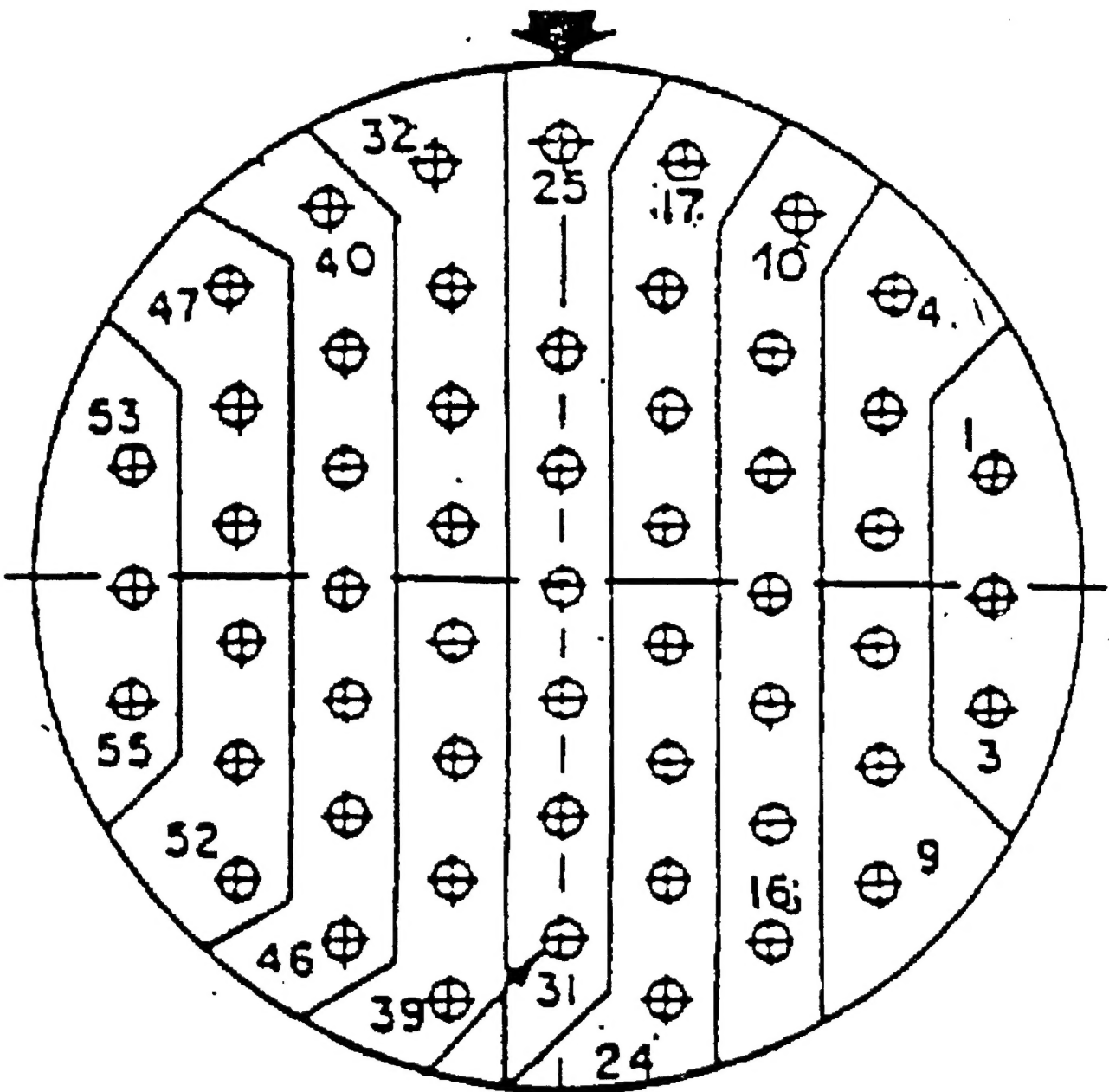
(Solder Pot Side)

## 11.7   File D001R008

## 11.7.1   Output HiJaak for Windows



A       ON POSITION #1 SWITCH
B       OFF POSITION #1 SWITCH (PRETRAVEL)
C       MECHANICAL DETENT
D       ON POSITION #2 SWITCH
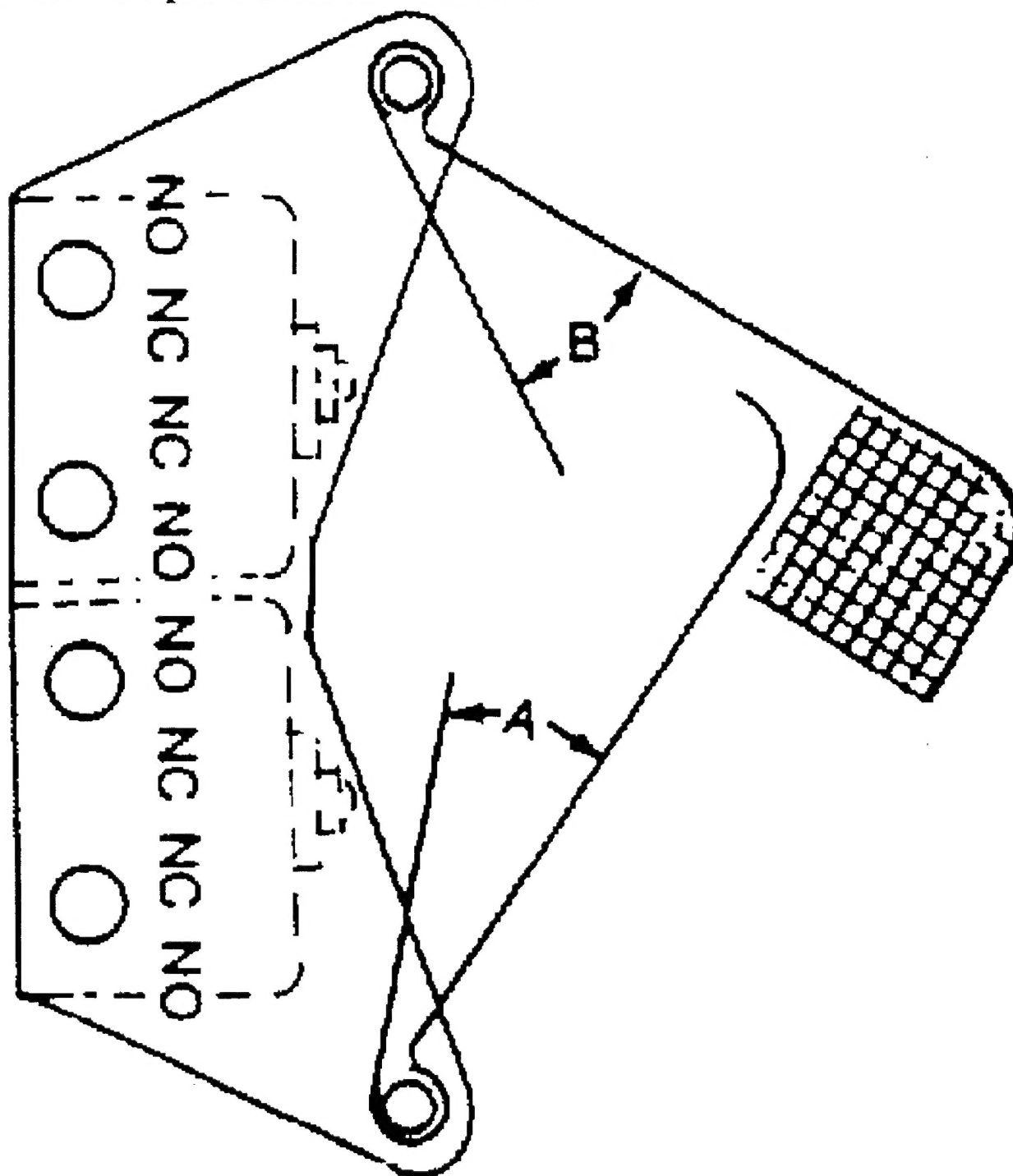E       OFF POSITION #2 SWITCH
F       STOP



MEASUREMENTS ARE IN INCHES

* See Note after Step 11.

## 11.8   File D001R009

## 11.8.1   Output HiJaak for Windows

## 11.9   File D001R010

## 11.9.1   Output HiJaak for Windows